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EXAMINER

SHAPIRO, LEONID

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 03/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,673

Applicant(s)

HOUSTON, JOHN S.

Examiner

Leonid Shapiro

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 1 recites the limitation "said circuit board" on page 8, Line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Boldridge et al. (US Patent No. 4, 712, 092) in view of Barry et al. (US Patent No. 6, 014, 131).

As to claim 1, Boldridge et al. teaches a keyboard having plurality of multifunction key position (See Fig. 8, item 32-33, in description See Col. 2, Lines 29-34, from Col. 7, Line 62 to Col. 8, Line 2 and Col. 6, Lines 40-42); a plurality of keys each key representing a character or function and containing a multibit binary code therein identifying the character or function, keys being capable of being positioned in any one of the key positions in the keyboard, keys being responsive to user contact to the keycaps (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68); a circuit matrix disposed below keyboard, circuit board being capable detecting the binary code when one of the keys is contacted to produce an electrical signal representative of the binary code associated with the contacted key (See Fig. 1,7, items 30-33, in description

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See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2); a standard interface connector to connect the keyboard to a computer (See Fig. 9B, item SERIAL DATA OUT, in description See from Col. 9, Line 60 to Col. 10, Line 2); a controller for converting the output of the circuit matrix for the contacted key to one which is recognizable by the computer so that the output of the keyboard provides to the standard interface connector correctly, identifies the contacted keys character or function to the computer irrespectively of the position of the key on the keyboard (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2).

Boldridge et al. does not show each key containing an inscription on the keycap representing a character or function.

Barry et al. teaches relegendable LCD keyswitches (See Fig. 1, 2A, in description See Col. 6, Lines 44-46 and Col. 7, Lines 40-44). It would have been obvious to one of ordinary skill in the art at the time of invention to implement an inscription on the keycap as shown by Barry et al. in the Boldridge et al. apparatus in order to allow interactive, real-time on-line assistance to the user (See Col. 6, Lines 56-58 in the Barry et al. reference).

As to claim 2, Boldridge et al. teaches the controller with a look-up table responsive to the multi-bit output of the circuit matrix to provide a standard code recognizable by a computer to the interface connector (binary address of PROM translates to a desired ASCII code for the respective depressed key) (See Fig. 1,7, 9A, items 41, 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2).

As to claim 3, Boldridge et al. teaches the keys have in the base of the key a plurality of locations each representing one digit in the multi-bit binary code to identify them in accordance with multi-bit binary code (See Fig. 6-7, items 30-35, in description See Col. 7, Lines 62-66).

Boldridge et al. does not teaches one or more pins each positioned one of the locations so that the keys all contain a different combination of location with posts and without posts. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the encoding in the in the Boldridge et al. apparatus to use one or more pins each positioned one of the locations so that the keys all contain a different combination of location with posts and without posts.

As to claim 4, Boldridge et al. teaches the keys have a circuit embedded therein storing the multi-bit binary code identifying the key and have electrical contacts providing excitation to the circuit and connecting it to the matrix to provide a multi-bit code signal to the controller to **identify** the key (See Fig. 6-8, 9, items 30-35, 41, 62, in description See Col. 7, Lines 62-68).

As to claim 5, Boldridge et al. teaches the circuit matrix provides the bits of the multi-bit binary code to the controller in **parallel** (See Fig. 6-8, 9, items 30-35, 41, 62, in description See Col. 2, Lines 28-35 and Col. 7, Lines 62-68).

As to claim 7, Boldridge et al. teaches the controller contains a look-up table which provides a standard key scan code signal recognizable by a computer to the interface connector in response to a multi-bit output of the circuit matrix identifying one of the keyboard keys See Fig. 9b, item 41, in description See from Col. 9, line 60 to Col. 10, Line 2).

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3. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Boldridge et al. and Barry et al. as aforementioned in claim 4 in view of Alexander (US Patent No. 3, 706, 905).

Boldridge et al. and Barry et al. do not teach the circuit matrix provides the bits of the multi-bit binary code to the controller serially.

Alexander teaches to transmit a serial binary code as each key is depressed (See fig. 1, items 12-13, in description see Col. 2, Lines 3-5). It would have been obvious to one of ordinary skill in the art at the time of invention to use Alexander approach in the Boldridge et al. and Barry et al. apparatus.

4. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Boldridge et al. and Barry et al. as aforementioned in claim 7 in view of Cherry (US Patent No. 4,529,848).

Boldridge et al. and Barry et al. do not teach the circuit matrix contains a plurality of capacitive switches each switch responsive to one of the pins to generate a key make signal.

Cherry teaches the circuit matrix contains a plurality of capacitive switches each switch responsive to generate a key signal (See Fig. 3, items 37-39, in description See Col. 4, Lines 36-43). It would have been obvious to one of ordinary skill in the art at the time of invention to use Cherry approach in the Boldridge et al. and Barry et al. apparatus in order to provide a capacitive switch with an overtravel operation (See Col. 1, Lines 48-49 in the Cherry reference).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

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The Bouchard et al. (US Patent No. 3,696,408) reference discloses keyboard encoder.

The Osborne et al. (US Patent No. 4,291,385) reference discloses calculator having merged key codes.

The Whipple et al. (US Patent No. 5,917,905) reference discloses telephone station equipment employing rewriteable display keys.

The Kaply et al. (US Patent No. 6,310,608) reference discloses system and method of keyboard configuration for disabled user access.


Telephone inquiries.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Is
March 4, 2003


BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
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